REMARKS

Claims 1-26 were pending. All stand rejected. The Applicant has amended claim 25 and cancelled claim 26. Therefore, claims 1-25 are currently pending. The applicant requests further consideration and re-examination in view of the amendments above and remarks set forth below.

Rejections under 35 U.S.C. § 103:

Claims 1-4, 6-7, 10-15 and 18-26 are rejected as being unpatentable over U.S. Patent No. 5,978 issued to Cabrera et al. (hereinafter "Cabrera") in view of U.S. Patent No. 5,566,331 issued to Irwin, Jr. et al. (hereinafter "Irwin").

The applicant respectfully traverses the rejection. As recited in claim 1, the present invention is directed toward a method of retrieving data from a data storage media. As is explained in the applicant's specification, data storage media, such as a magnetic tape or disk or optical drive, includes both data and a software program for disentangling the data. Applicant's specification, at page 4, lines 16-30. The software program is retrieved from the media and loaded into a computer system that is to be used for interpreting the data. Applicant's specification, at page 6, lines 12-26. The program provides at least two different operations or routines for accessing or presenting the data stored on the media. Applicant's specification, at page 5, lines 14-26. Thus, claim 1 recites "loading a program from the data storage media into a computer system, the program including at least a first routine for responding to a first request type for access to the data storage media and a second routine for responding to a second request type for access to the data storage media."

When a request for access to the data is received, a determination is made as to the type of the request. Applicant's specification, page 7, lines 10-12. The possible request types include, for example, requests for access as though the data were an image backup or a set of logical volumes and requests for access as though the data were a file system. Applicant's specification, page 7, lines 14 to page 8, line 4. Thus, claim 1 recites "receiving a request for access to data stored on the data storage media" and "determining whether the request is of the first type or the second type."

A routine from the program that is appropriate to the request is called to service the request. Applicant's specification, page 7, line 23 to page 8, line 8. The requested data may then be returned to the requestor. Applicant's specification, page 8, lines 9-10. Thus, claim 1 recites "calling the first routine for accessing the data

when the request is of the first type and calling the second routine for accessing the data when the request is of the second type" and "presenting the data."

Therefore, the storage media in accordance with the present invention includes both the data to be accessed and a software program for servicing requests for access. The data can be retrieved using multiple different request types and interpreted in accordance with multiple different data formats. The invention overcomes disadvantages of prior storage techniques since the data can be completely or partially reconstructed, as needed. Further, the invention isolates the data storage format from the application used to generate the data so as to minimize problems caused by outdated data storage formats. Applicant's specification, page 2, lines 17-23.

Cabrera is directed to remote data storage which provides native support in the file system for remote data storage while simultaneously minimizing any changes that must be made to an existing file system to incorporate such native capability. Cabrera, col. 3, lines 9-15. Cabrera explains that in previous systems, data for a file was previously all stored locally or all stored remotely. Cabrera at col. 15, lines 51-53. Cabrera discusses that certain data of a file that was accessed regularly could be maintained in local storage while other data that was accessed infrequently could be removed to remote storage. Cabrera at col. 15, lines 53-61. A file includes two fundamental groups of attributes: system attributes which store information required by the system to perform its various functions and data attributes which store user controlled data. Cabrera at col. 13, lines 4-17. Cabrera adds a new attribute referred to by Cabrera as a "remote storage attribute" which identifies a particular file as having remotely stored attributes and also includes information that identifies the location of the remotely stored attributes. Cabrera at col. 13, lines 38-43.

Cabrera implements hierarchical management of storage using a plurality of different drivers in a layered driver model. Cabrera at col. 26, lines 26-29. An I/O request by a client process results in an I/O manager creating an I/O Request Packet (IRP) which is sent to an appropriate driver. Cabrera at col. 16, lines 34-43. The I/O request is forwarded through the various drivers in the hierarchy with each driver performing any required processing before forwarding the I/O request on the next driver. Cabrera, at col. 16, lines 54-57. When an I/O request involving a file with remotely stored attributes is identified, responsibility for processing the I/O request is transferred from one driver to another. Cabrera at col. 21, lines 18-20. Before a driver assumes responsibility for processing an I/O request involving a file with

remotely stored attributes, the driver must ascertain whether it is the owner of the remote storage attribute. Cabrera at col. 21, lines 50-54. Each driver is assigned a unique tag value. Cabrera at col. 21, lines 57-59. When a lower level driver encounters a file with remote storage attributes, the lower level driver extracts the tag and value of the remote storage attribute and passes it back up to higher level drivers. Cabrera at col. 21, lines 59-63. Each driver examines the tag value to identify if it was the owner of the remote storage attribute and should assume responsibility for processing the I/O request. Cabrera at col. 21, lines 63-66. Such a driver will assume responsibility for processing the I/O request and take steps to complete the request. Cabrera at col. 22, lines 27-33.

Irwin discloses a mass storage system for file systems that manages data on a file-system basis, rather than by individual files. Irwin at col. 2, lines 49-54 and 60-61. The mass storage system of Irwin stages files as bit files between archival storage devices and direct access storage devices. Irwin at col. 2, lines 54-56. Irwin explains that because entire file systems are staged to channel attached-storage devices and without interpretation, inefficiencies and network bottlenecks of network file service are avoided. Irwin at col. 2, lines 60-67. Irwin explains that there is an important distinction between a network and a channel. Irwin at col. 12, lines 17-18. Particularly, Irwin states that a network is a general purpose data communications path which is incapable of data transfer rates for driving storage devices at their full data transfer rates and that a channel is a special purpose communication path which is designed to connect a client processor to a data storage device at very high data transfer rates. Irwin at col. 12, lines 18-35. Irwin also states that the system enables users and client applications to transparently access file systems through what appears to be a directly attached storage device via a conventional block-access storage device driver without a performance penalty as would be the case with accessing a storage device across a network. Irwin at col. 12, lines 36-67.

File-system access is accomplished according to Irwin by determining if the needed file system is mounted (known and available on direct access storage) and, if so, on which direct access storage device it resides. Irwin at col. 9, lines 8-24. If the needed file system is not mounted, a mount request is performed by which the file system is retrieved from archival storage and staged to direct access storage. Irwin at col. 9, line 31 to col. 10, line 45. When the file system is no longer needed, it can be dismounted. Irwin at col. 11, lines 5-6. A dismount request is performed by waiting

until outstanding activity for the file system is completed or terminated and locating a sufficient unused portion of archival storage. Irwin at col. 11, lines 21-47. The file system is then copied to the archival storage. Irwin at col. 48-60.

Regarding claim 1, the Examiner stated that Cabrera teaches the claimed feature of loading a program from the data storage media into a computer system, the program including at least a first routine for responding to a first request type for access to the data storage media and a second routine for responding to a second request type for access to the data storage media at col. 4, lines 10-19, col. 8, lines 44-48, col. 12, lines 48-58, col. 21, lines 20-40 and Figure 6 of Cabrera. Examiner further stated that Cabrera further teaches the claimed feature of receiving a request for access to data stored on the data storage media at col. 21, lines 18-67, col. 22, lines 1-67 and Figure 6 of Cabrera. The Examiner also stated that Cabrera teaches the claimed feature of determining whether the request is of the first type or the second type at col. 11, lines 60-67 and col. 12, lines 12-21. The Examiner also stated that Cabrera teaches at col. 19, lines 5-50 the claimed feature of calling the first routine for accessing the data when the request is of the first type and calling the second routine for accessing the data when the request is of the second type. In addition, the Examiner stated that at col. 6, lines 5-14 and col. 4, lines 25-38, Cabrera teaches presenting the requested data. The Examiner further stated that Cabrera does not clearly teach the archival operations or the second request type.

Further, the Examiner stated that at col. 11, lines 45-67 and col. 12, lines 1-67, Irwin teaches "I/O request for archival storage operations on which the requested data file is stored and data file copy for this operation." In addition, the Examiner stated that it would have been obvious to combine the teachings of Cabrera with the teachings of Irwin "by incorporating the use of a second request type for access storage media via the archival storage device on which the requested data is stored and the I/O request such as data file copy and dismount operation. The motivation being to have allowed the use of specifying of the operations such as file system operations and backup archival operations or process in order to copy the data file from the program, I/O manager, stored on the data storage media."

As is explained above (and was also explained in response to the first office action) claim 1 requires that the first and second routines are loaded from the same storage media that stores the data to be accessed. This is clear because claim 1 recites "loading a program from the data storage media," "receiving a request for access to

data stored on the data storage media," and "calling the first routine for accessing the data when the request is of the first type and calling the second routine for accessing the data when the request is of the second type." This feature overcomes disadvantages of prior storage techniques since the data can be completely or partially reconstructed as needed. Applicant's specification at page 2, lines 19-21. Further, this isolates the data storage format from the application used to generate the data so as to minimize problems caused by outdated storage formats. Applicant's specification at page 2, lines 21-23.

Nowhere does Cabrera teach or suggest loading any routine for responding to a request for storage access from the same media that stores the data to be accessed by the routine, as is required by claim 1. The applicant has studied Cabrera, including the numerous passages cited by the examiner, but is unable to locate such a teaching or suggestion. Thus, the Examiner has not pointed out where in Cabrera this feature is disclosed. Irwin does not disclose the feature either, nor has the examiner pointed out where in Irwin this feature is disclosed.

Moreover, claim 1 requires loading a program including a "first routine" and a "second routine" from the media that stores the data to be accessed. Because Cabrera and Irwin do not teach or suggest loading any routine for responding to a request for storage access from the same media that stores the data to be accessed by the routine, they cannot suggest or disclose two such routines.

From the Examiner's comments, it seems that the Examiner's position is that these steps of claim 1 require no more than loading media into a device, and receiving an I/O request for accessing the media for archival and file system operations. However, the Examiner cannot properly ignore limitations in the claims in making a rejection. See Section 2143.03 of the Manual of Patent Examining Procedure. The Examiner's position disregards features explicitly recited in claim 1 and is, therefore, not correct. As explained above, the steps of claim 1 require that the first and second routines are loaded from the same storage media that stores the data to be accessed. Nowhere does Cabrera or Irwin teach or suggest this feature that is required by claim 1, nor has the Examiner pointed out where in Cabrera or Irwin this feature is disclosed.

For at least this reason, claim 1 is allowable over Cabrera and Irwin, taken singly or in combination. Claims 2-14 are allowable at least because they are dependent from an allowable claim 1.

Further, as explained above (and was also explained in response to the first office action), the "first routine" and the "second routine" of claim 1 are alternatives such that, for a particular request, one of the routines is selected for accessing the data based on the type of the request. This is clear because claim 1 recites a step of "determining whether the request is of the first type or the second type." The Examiner stated that Cabrera discloses this feature since it teaches "determining what needs to be done to process the I/O request." However, merely determining what needs to be done to process an I/O request in the context of Cabrera does not suggest or disclose making a determination whether the request is of the first type or the second type and selecting the "first routine" and the "second routine" based on this determination, as is required by claim 1. The applicant respectfully submits that neither Cabrera nor Irwin suggests or discloses this feature. This is another reason why claim 1 is allowable over Cabrera and Irwin, taken singly or in combination. This is also another reason why claims 2-14 are allowable, being dependent from claim 1.

The Examiner rejected independent claims 15, 22 and 25 for essentially the same reasons as claim 1. Claims recite 15 and 22 each recite an article of manufacture comprising a computer usable medium having data stored thereon and having computer readable program code stored thereon, the computer readable program code including a first routine for accessing the data and a second routine for accessing the data. Neither Cabrera, nor Irwin, suggests or discloses the first and second routines stored on the same storage media that stores the data to be accessed. For at least this reason, claims 15 and 22 are allowable over Cabrera and Irwin, taken singly or in combination. Claims 16-21 and 23-24 are allowable at least because they are dependent from an allowable base claim.

Claim 25, as now amended, recites an article of manufacture comprising a computer usable medium having data stored thereon and having computer readable program code stored on secondary storage associated with the computer usable medium, the computer readable program code including a first routine for accessing the data in response to a request of a first request type and a second routine for accessing the data in response to a second request type, wherein the secondary storage is built into a cartridge for the data storage media.

The Examiner stated that Cabrera does not disclose the feature in which the secondary storage is built into a cartridge for the data storage media, but that Irwin

does because Irwin discloses a tape cartridge. The Examiner further stated that it would have been obvious to modify Cabrera to include this feature. The Applicant respectfully disagrees. Nowhere does Irwin suggest or disclose storing first and second routines or accessing data in a secondary storage built into a cartridge for the data storage media that stores the data to be accessed. The mere mention of a tape cartridge in Irwin does not suggest or disclose this feature. For at least this reason, claim 25 is allowable over Cabrera and Irwin, taken singly or in combination.

Further, claim 25 requires that the "first routine" and "second routine" are stored by the same data storage media, albeit in a secondary storage built into a cartridge for the data storage media that stores the data to be accessed. Neither Cabrera, nor Irwin suggest or disclose loading any routine for responding to a request for storage access from the same cartridge that stores the data to be accessed by the routine. This is another reason why claim 25 is allowable.

In addition, as explained above, the "first routine" and the "second routine" of claims 15, 22 and 25 are alternatives such that, for a particular request, one of the routines is selected for accessing the data based on the type of the request. This is another reason why claims 15, 22 and 25 are allowable over Cabrera and Irwin, taken singly or in combination. This is also another reason why claim 16-21 and 23-24 are allowable being dependent from an allowable base claim.

The Examiner rejected claim 5 in view of Cabrera, Irwin and Pub. No. 2002/0152194. Claim 5 is dependent from claim 1. Claim 1 is allowable over the cited references for the reasons stated above. The Applicant submits that Pub. No. 2002/0152194 does not suggest or disclose the features of claim 1 which are missing from Cabrera and Irwin. Therefore, for at least this reason, claim 5 is allowable.

The Examiner rejected claims 8-9 and 16-17 in view of Cabrera, Irwin and U.S. Patent No. 5,276,867 to Kenley. The examiner also mentions Pub. No. 2002/0152194. Claims 8-9 are dependent from claim 1, while claims 16-17 are dependent from claim 15. Claims 1 and 15 are allowable over the cited references for the reasons stated above. The Applicant submits that neither Pub. No. 2002/0152194 nor Kenley suggest or disclose the features of claim 1 and 15 which are missing from Cabrera and Irwin. Therefore, for at least this reason, claims 8-9 and 16-17 are allowable.

In rejecting claims 8-9 and 16-17, the Examiner also mentions Sheppard and Zimmerman references. However, no such Sheppard or Zimmerman reference is

listed on the Notice of References cited. The Applicant believes that the Examiner instead intended to refer to one or more of Cabrera, Irwin, Kenley or Pub. No. 2002/0152194. Therefore, the Applicant understands that the Examiner does not rely upon the Sheppard and Zimmerman references in making any of the rejections.

Conclusion:

In view of the above, the applicants submit that all of the pending claims are now allowable. Allowance at an early date would be greatly appreciated. Should any outstanding issues remain, the examiner is encouraged to contact the undersigned at (408) 293-9000 so that any such issues can be expeditiously resolved.

Respectfully Submitted,

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